PA05

AN ECONOMIC MODEL FOR GASTROINTESTINAL RISK STRATIFICATION COMPARING COX-2 INHIBITORS TO TRADITIONAL NSAIDS FOR ARTHRITIS TREATMENT

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The cost-effectiveness of cyclooxygenase-2 (COX-2) inhibitors over traditional non-steroidal anti-inflammatory drugs (NSAIDs) has not been demonstrated in the general population. There is significant evidence to support that risk factors such as age, gastrointestinal event history and NSAID intolerance alone or in combination can increase the rate of clinically significant upper gastrointestinal events (CSUGIE).
OBJECTIVES: This pharmacoeconomic model compares the cost-effectiveness profiles of NSAIDs, rofecoxib and celecoxib therapies in populations at high risk of CSUGIE from the perspective of Veteran Affairs (VA) Healthcare System.
METHODS: Data was reviewed from published post-marketing outcome trials and FDA reviews of rofecoxib and celecoxib compared to naproxen, ibuprofen, and diclofenac and incorporated into an event targeted one-year decision model. Gastrointestinal (GI) event rates were stratified by high-risk subgroups receiving chronic treatment for arthritic conditions. Additionally, dyspepsia, renal toxicity, and cardiovascular adverse event rates were included to capture a comprehensive representation of safety for all agents compared. Sensitivity analysis was performed on all major indices based on variations in results found in reviewed studies.
RESULTS: In spite of the substantial differences in GI event rates for the following high-risk subgroups of age ((NSAIDS: 8.63–12.7%, celecoxib and rofecoxib: 3.54–7.9%), history of CSUGIE (NSAIDS: 11.8–15.3%, celecoxib 7.8%, rofecoxib 6.72%) and previous NSAID intolerance (NSAIDS: 3.89–7.8%, celecoxib 8.0%, rofecoxib1.87%), NSAIDs remain more cost-effective. In non-aspirin patients, inclusion of myocardial infarction (MI) event rates (NSAIDS: 0.15%, celecoxib 0.53%, rofecoxib 0.74%) resulted in higher cost for patients receiving rofecoxib. The primary cost drivers identified were CSUGIEs, hospitalizations, and differences in cardiovascular toxicity, specifically rates of congestive heart failure and MI.
CONCLUSIONS: Inclusion of overall safety data in high-risk populations did not alter the cost effectiveness of NSAIDs compared to COX-2 inhibitors as the primary therapy in treatment of arthritis patients in the VA Healthcare System.

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COST-EFFECTIVENESS OF BISPHOSPHONATE THERAPIES IN POST-MENOPAUSAL WOMEN: A THRESHOLD ANALYSIS

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Osteoporosis is a large and growing disease category with significant health consequences. Information on the cost-effectiveness of preventing and treating this disease may help healthcare payers allocate resources more efficiently.
OBJECTIVE: To assess cost-effectiveness of bisphosphonate therapies in multiple populations, subject to a value threshold.
METHODS: A fracture incidence-based Markov model of osteoporosis, where patients transition across outcome states over time (e.g., fracture, healthy, dead), was used to estimate incremental cost per QALY gained ratios. The base case analysis was conducted on a cohort of women aged 65 years with low bone mineral density (BMD) and prevalent vertebral fracture, with 3 years of treatment with Actonel or Fosamax, using a 3-year time horizon. Model inputs included fracture incidence rates, relative risk (RR) reduction of fracture due to risk factors, fracture costs, prices/day (Actonel $1.95; Fosamax $2.21), health utilities, and efficacy in terms of relative risk (RR) of fracture reductions for hip (60% Actonel; 51% Fosamax) and vertebral (49% Actonel; 47% Fosamax). A 3% discount rate was applied to costs and outcomes. Multiple populations were evaluated by varying efficacy rates (upper/lower 95% confidence intervals), fracture costs (+/–25%), utility values (+/–50%), fracture RR (2.0–7.0), age (55–75), therapy discontinuation (0%–76%), and time horizon (to lifetime).
RESULTS: Using a $30,000 per QALY gained cost-effectiveness threshold, Actonel compared to no treatment was cost-effective in the majority of populations. Under base case assumptions Actonel's cost/QALY gained was $16,158 and dominated Fosamax (i.e., less costly and more effective). Actonel's cost/QALY ratio crossed the threshold as RR of fracture declined (<5), starting cohort age fell (<62), discontinuation rose, fracture costs decreased (>25%), or fracture-related utility decrements decreased (>50%).
CONCLUSIONS: Many high-risk patient subpopulations can be treated economically with bisphophonates. The most significant drivers are RR of fracture, starting cohort age and time horizon.

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COST OFFSETS ARISING FROM THE USE OF MIACALCIN: PRELIMINARY RESULTS

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